REMARKS

This amendment is responsive to the Office Action dated August 26, 2005. Applicants have amended claims 1, 4, 8, 9, 30, 35, 38-40, 43, 51, 53, 55 and 56. Claims 18-26, 31-34 and 47-50 were withdrawn previously. Claims 1-17, 27-30, 35-46 and 51-56 remain pending.

Claim Rejection Under 35 U.S.C. § 112

In the Office Action, the Examiner rejected claims 4, 8, 9, 30, 38-40, 43, 51, 55, and 56 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants have amended claims 4, 8, 9, 30, 38-40, 43, 51, 55 and 56 for purposes of clarification. Applicants submit that claims 4, 8, 9, 30, 38-40, 43, 51, 55 and 56, as amended, particularly point out and distinctly claim the subject matter, as required by 35 U.S.C. 112, second paragraph. Applicants request withdrawal of the rejections.

Claim Rejection Under 35 U.S.C. § 102

In the Office Action, the Examiner rejected claims 1, 3, 4, 6, 27, 30, 35, 37-39, 41, 42 and 53 under 35 U.S.C. 102(e) as being anticipated by Genty et al. (US 6,473,863). Applicants respectfully traverse the rejections to the extent such rejections may be considered applicable to the amended claims. Genty et al. (Genty) fails to disclose each and every feature of the claimed invention, as required by 35 U.S.C. 102(e), and provides no teaching that would have suggested the desirability of modification to include such features.

For example, Genty fails to teach or suggest establishing a packet tunnel, detecting a network attack, and establishing a new packet tunnel upon detecting the network attack, wherein the new packet tunnel comprises *two or more concatenated* packet tunnels, as recited by Applicants' amended independent claims 1, 35 and 53. On the contrary, Genty describes an end-to-end virtual private network (VPN) tunnel established between two nodes of a network system. The nodes of the VPN exchange secondary VPN configuration information, e.g., secondary IP addresses of the nodes. In the event that either node of the VPN tunnel detects snooping or other possible security breaches along the VPN tunnel, the detecting node sends a predetermined change code to the other node. Gentry teaches that the change code designates the previously-

exchanged secondary VPN configuration information to be used. Using the secondary VPN configuration information, the nodes negotiate a secondary *end-to-end* VPN tunnel.

Applicants teach a packet tunnel slitting technique that facilitates reconfiguration of packet flow labels without limiting the address space diversity available for performing this reconfiguration. Applicants describe splitting an end-to-end packet tunnel into *two or more concatenated* packet tunnels when a network attack is detected. More specifically, upon detecting a network attack, one of a source device or a destination device of an end-to-end packet tunnel selects a pre-configured intermediate device as the tunnel concatenation point for the new packet flows between the source device and the destination device.

Genty does not describe establishing a new packet tunnel that comprises two or more *concatenated* packet tunnels. Genty merely describes establishing a secondary *end-to-end* VPN tunnel using the same nodes as the original VPN tunnel. Genty makes no suggestion of *selecting an intermediate device* upon detecting a network attack. Furthermore, Genty fails to discuss establishing a new VPN tunnel that includes a first VPN tunnel terminated at the selected intermediate device and a second VPN tunnel originated at the selected intermediate device.

In regard to Applicants' independent claim 27, Genty fails to teach or suggest establishing a virtual private network service including a packet tunnel, detecting a network attack, and establishing a new virtual private network service upon detecting the network attack, wherein the new virtual private network service comprises two or more concatenated packet tunnels.

In the Office Action, the Examiner failed to even consider the limitation wherein the new virtual private network service comprises two or more concatenated packet tunnels, as recited by Applicants' claim 27. Instead, the Examiner asserted that Genty teaches establishing a secondary tunnel upon detecting a network attack. As described above, Genty does not describe establishing a new packet tunnel that comprises *two or more concatenated packet tunnels*. Genty merely describes establishing a secondary *end-to-end* VPN tunnel using the same nodes as the original VPN tunnel. Genty makes no suggestion of selecting an intermediate device upon detecting a network attack. Furthermore, Genty fails to discuss establishing a new VPN tunnel that includes a first VPN tunnel terminated at the selected intermediate device and a second VPN tunnel originated at the selected intermediate device.

Applicants' independent claims 1, 27, 35 and 53 are in condition for allowance. For at least these reasons, Applicants' dependent claims 3, 4, 6, 30, 37-39, 41 and 42 are also in condition for allowance. In order to support an anticipation rejection under 35 U.S.C. 102(e), it is well established that a prior art reference must disclose each and every element of a claim. This well known rule of law is commonly referred to as the "all-elements rule."[1] If a prior art reference fails to disclose any element of a claim, then rejection under 35 U.S.C. 102(e) is improper. [2]

Genty fails to disclose each and every limitation set forth in claims 1, 3, 4, 6, 27, 30, 35, 37-39, 41, 42 and 53. For at least these reasons, the Examiner has failed to establish a prima facie case for anticipation of Applicants' claims 1, 3, 4, 6, 27, 30, 35, 37-39, 41, 42 and 53 under 35 U.S.C. 102(e). Withdrawal of these rejections is requested.

Claim Rejection Under 35 U.S.C. § 103

Genty et al. and Maeshima et al.

In the Office Action, the Examiner rejected claims 5, 7-11, 14, 15, 28, 40, 43, 44, 51, 52 and 54-56 under 35 U.S.C. 103(a) as being unpatentable over Genty in view of Maeshima et al. (US 6,092,113). Applicants respectfully traverse the rejections. The applied references fail to disclose or suggest the inventions defined by Applicants' claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

For example, Genty and Maeshima et al. (Maeshima) fail to teach or suggest reserving an amount of bandwidth for the packet tunnel, canceling the reserved bandwidth upon detecting the network attack, and reserving an amount of bandwidth for the new packet tunnel, as recited by claims 5, 40 and 54. The Examiner correctly acknowledged that Gentry fails to teach reserving an amount of bandwidth for a packet tunnel and a replacement tunnel. However, the Examiner asserted that Maeshima describes reserving bandwidth for every IP tunnel on the network. The

[1] *See Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 USPQ 81 (CAFC 1986) ("it is axiomatic that for prior art to anticipate under 102 it has to meet every element of the claimed invention").
[2] *Id. See also Lewmar Marine, Inc. v. Barient, Inc.* 827 F.2d 744, 3 USPQ2d 1766 (CAFC 1987); *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (CAFC 1990); *C.R. Bard, Inc. v. MP Systems, Inc.*, 157 F.3d 1340, 48 USPQ2d 1225 (CAFC 1998); *Oney v. Ratliff*, 182 F.3d 893, 51 USPQ2d 1697 (CAFC 1999); *Apple Computer, Inc. v. Articulate Systems, Inc.*, 234 F.3d 14, 57 USPQ2d 1057 (CAFC 2000).

Examiner stated that Genty and Maeshima are analogous art because both references are related to virtual private network setup.

Genty fails to even mention reserving bandwidth for the VPN tunnel. Maeshima fails to even mention network attack avoidance. For example, Maeshima fails to suggest canceling the reserved bandwidth for a packet tunnel upon detecting a network attack or reserving the bandwidth for a new packet tunnel established after the network attack is detected. Clearly, the cited references, either singularly or in combination, provide no motivation to one of ordinary skill in the art to modify the VPN attack avoidance method of Genty with the VPN assured bandwidth construction method of Maeshima. Instead, the conclusion of obviousness advanced by the Examiner relies on a motivation plucked directly from Applicants' own disclosure, rather than the prior art. The Examiner failed to provide any reason why one of ordinary skill in the art would have considered it desirable to reserve bandwidth, as described by Maeshima, within the VPN attack avoidance method described by Genty. In a similar manner, Gentry and Maeshima, either singularly or in combination, fail to teach or suggest the features of Applicants' dependent claims 7, 14, 15 and 55.

In regard to Applicants' dependent claims 8, 28 and 56, Genty and Maeshima do not describe establishing the new packet tunnel by selecting an intermediate network device, establishing a first packet tunnel that *terminates on the intermediate network device*; and establishing a second packet tunnel that *originates from the intermediate network device*. The Examiner correctly acknowledged that Genty fails to teach selecting an intermediate device and establishing tunnels with the intermediate device. However, the Examiner asserted that Maeshima describes an IP tunnel with intermediate routers between the source and destination devices. The Examiner stated that Genty and Maeshima are analogous art because both references are related to virtual private network setup.

As described above, Applicants' teach a packet tunnel splitting technique that facilitates reconfiguration of packet flow labels without limiting the address space diversity available for performing this reconfiguration. Applicants describe splitting an end-to-end packet tunnel into two or more *concatenated* packet tunnels when a network attack is detected. More specifically, upon detecting a network attack, one of a source device or a destination device of an end-to-end

packet tunnel selects a pre-configured intermediate device as the tunnel concatenation point for packet flows between the source device and the destination device.

Applicants respectfully submit that the Examiner has misinterpreted the scope of the Maeshima reference. Maeshima merely describes establishing an *end-to-end* packet tunnel between a source device and a destination device that includes one or more intermediate devices. Maeshima fails to suggest one of the source and destination devices selecting an intermediate device and establishing a new packet tunnel including a first packet tunnel that terminates on the selected intermediate device and a second packet tunnel that originates from the selected intermediate device. In fact, Maeshima does not even discuss the operation of the intermediate routers included in the end-to-end packet tunnel. To the extent intermediate routers are used, they merely route packets along the single, end-to-end tunnel. They do not operate as termination points or origination points for concatenated tunnels.

One of ordinary skill in the art certainly would not have looked to the Maeshima reference to modify the VPN attack avoidance method of Genty to include a packet tunnel splitting technique. Neither Genty nor Maeshima suggest establishing a new packet tunnel using an intermediate to device that *terminates* a first packet tunnel and *originates* a second packet tunnel. Clearly, even if the referenced were combined it would not result in Applicants' invention as claimed. In a similar manner, Gentry and Maeshima, either singularly or in combination, fail to teach or suggest the features of Applicants' dependent claims 9-11, 43 and 44.

In regard to Applicants' independent claim 51, Genty and Maeshima fail to teach or suggest a source network device that originates a first packet tunnel, an intermediate network device that terminates the first packet tunnel and originates a second packet tunnel, and a destination network device that terminates the second packet tunnel, wherein the intermediate network device de-encapsulates packets received from the first packet tunnel and re-encapsulates the packets for communication to the destination network device via the second packet tunnel.

The Examiner stated that Maeshima teaches a source device originating a tunnel and an intermediate device between a first and second tunnel. The Examiner correctly acknowledged that Maeshima fails to teach the intermediate device de-encapsulating and re-encapsulating the packet for transmission. However, the Examiner asserted that Genty describes encapsulating a

packet for transmission through a tunnel. The Examiner stated that Genty and Maeshima are analogous art because both references are related to virtual private network setup.

On the contrary, Maeshima merely describes establishing an *end-to-end* packet tunnel between a source device and a destination device that includes one or more intermediate devices. Maeshima fails to suggest an intermediate device terminating a first packet tunnel from a source device and originating a second packet tunnel to a destination device. In fact, Maeshima does not even discuss the operation of the intermediate routers included in the end-to-end packet tunnel. Furthermore, Genty fails to even mention intermediate device within a packet tunnel, let alone an intermediate device terminating a first packet tunnel and originating a second packet tunnel. Contrary to the Examiner's assertion, Gentry certainly fails to teach de-encapsulating and re-encapsulating packets at an intermediate device that is a concatenation point between a first packet tunnel and a second packet tunnel.

As described above, the cited references provide no motivation to one of ordinary skill in the art to combine the teachings of the Gentry reference with the teachings of the Maeshima reference. Furthermore, neither of the cited references teaches an intermediate device that terminates a first packet tunnel and originates a second packet tunnel such that packets are de-encapsulated from the first packet tunnel and re-encapsulated on the second packet tunnel. Therefore, even if the teachings of the cited references were combined it still would not result in Applicants' claimed invention. In a similar manner, Gentry and Maeshima, either singularly or in combination, fail to teach or suggest the features of Applicants' dependent claim 52.

Moreover, as described above, Genty does not teach or suggest establishing a new packet tunnel that comprises two or more concatenated packet tunnels, as recited by Applicants' independent claims 1, 27, 35 and 53. Maeshima et al. (Maeshima) fails to provide any teaching capable of overcoming the deficiencies of Genty.

Genty et al. and Shawcross

In the Office Action, the Examiner rejected claims 16, 17 and 29 under 35 U.S.C. 103(a) as being unpatentable over Genty in view of Shawcross (US 6,880,090). Applicants respectfully traverse the rejections. The applied references fail to disclose or suggest the inventions defined

by Applicants' claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

As described above, Genty does not teach or suggest establishing a new packet tunnel that comprises two or more concatenated packet tunnels, as recited by Applicants' independent claims 1 and 27. Shawcross fails to provide any teaching capable of overcoming the deficiencies of Genty.

Genty et al. and Adams et al.

In the Office Action, the Examiner rejected claims 2 and 36 under 35 U.S.C. 103(a) as being unpatentable over Genty in view of Adams et al. (US PGPUB 2003/0016679). Applicants respectfully traverse the rejections. The applied references fail to disclose or suggest the inventions defined by Applicants' claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

As described above, Genty does not teach or suggest establishing a new packet tunnel that comprises two or more concatenated packet tunnels, as recited by Applicants' independent claims 1 and 35. Adams et al. (Adams) fails to provide any teaching capable of overcoming the deficiencies of Genty.

Genty et al., Maeshima et al, and Jorgensen

In the Office Action, the Examiner rejected claims 12, 13, 45 and 46 under 35 U.S.C. 103(a) as being unpatentable over Genty in view of Maeshima and further in view of Jorgensen (US PGPUB 2002/0099854). Applicants respectfully traverse the rejection. The applied references fail to disclose or suggest the inventions defined by Applicants' claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

As described above, Genty does not teach or suggest establishing a new packet tunnel that comprises two or more concatenated packet tunnels, as recited by Applicants' independent claims 1 and 35. Furthermore, Gentry and Maeshima, either singularly or in combination, fail to teach or suggest selecting an intermediate network device, establishing a first packet tunnel that terminates on the intermediate network device, and establishing a second packet tunnel that

originates from the intermediate network device, as recited by Applicants' claim 8, from which claims 12 and 13 depend, and Applicants' claim 43, from which claims 45 and 46 depend. Jorgensen fails to provide any teaching capable of overcoming the deficiencies of Genty as modified by Maeshima.

For at least these reasons, the Examiner has failed to establish a prima facie case for non-patentability of Applicant's claims 2, 5, 7-17, 28, 29, 36, 40, 43-46, 51, 52 and 54-56 under 35 U.S.C. 103(a). Withdrawal of this rejection is requested.

CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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